

**CLAIMS:**

*SLB*  
*PJZ*

1. An image sensor for sensing the light of an image impinging thereupon and for translating the image into a standard television format, said image sensor comprising a plurality of pairs of light-detecting elements arranged in rows and columns for generating respective analog signals in proportion to the intensity of the light impinging respectively on one of the light-detecting elements, characterized in that each pair of light-detecting elements comprises:

- 5 (1) a first photodiode;
- 10 (2) a second photodiode;
- (3) at least one turn-on transistor coupled to each of said first and second photodiodes and having a gate, wherein said first and second photodiodes in each pair of light-detecting elements are coupled in parallel in the column direction at a floating sensing point through said at least one turn-on transistor; and
- 15 (4) translating means coupled to said floating sensing point for resetting the initial state of said floating sensing point and reading out said analog signals to a column line;

20 wherein said first and second photodiodes in adjacent pairs of light-detecting elements are coupled in parallel in the column direction such that said at least one turn-on transistors coupled to said first and second photodiodes are sequentially controlled by first and second gate control lines coupled to the gate of said at least one turn-on transistor, respectively and analog signals acquired in said first and second photodiodes of one of the same pairs and the adjacent pairs present at said floating sensing point in response to one of said first and second gate control lines, thereby enhancing 25 the light sensitivity of said image sensor.

2. The image sensor of claim 1, wherein said analog signals acquired in said photodiodes controlled by said first gate control lines constitute first field signals and said analog signals acquired in said photodiodes controlled by said second gate control lines constitute second field signals, wherein the components of said first field and second signals are correlated with one another and the time difference thereof is less than 1/60 second, thereby improving the quality of said image displayed in a television.

3. The image sensor of claim 1, wherein said translating means further comprises an amplifier transistor for amplifying the analog signals presenting at said floating sensing point.

4. The image sensor of claim 1, wherein said translating means comprises a reset transistor for resetting the initial state of said floating sensing point in response to a reset signal and a source follower transistor and another turn-on transistor coupled to said column line.

5. The image sensor of claim 1, wherein said first and second photodiodes in each pairs of light-detecting elements each connects to one turn-on transistor enabled by a specific gate control line such that said first and second photodiodes are coupled together at said floating sensing point in response to said specific gate control line.

6. The image sensor of claim 1, wherein said first and second photodiodes in each pairs of light-detecting elements each connects to two turn-on transistors enabled by two different gate control lines such that said first and second photodiodes are coupled together at said floating sensing point.

7. A method for use in an image sensor for sensing the light of an image impinging thereupon and for translating the image into a selected television format comprising a plurality of pairs of light-detecting elements

arranged in rows and columns for generating respective analog signals in proportion to the intensity of the light impinging respectively on one of the light-detecting elements, each pair of light-detecting elements comprising: a first photodiode, a second photodiode, at least one turn-on transistor coupled to each of said first and second photodiodes and having a gate, wherein said first and second photodiodes in each pair of light-detecting elements are coupled in parallel in the column direction at a floating sensing point through said at least one turn-on transistor and translating means coupled to said floating sensing point for resetting the initial state of said floating sensing point and reading out said analog signals to a column line, wherein said first and second photodiodes in adjacent pairs of light-detecting elements are coupled in parallel in the column direction, the method comprising the steps of:

- (1) generating respective analog signals in proportion to the intensity of the light impinging on respective one of the light-detecting elements;
- (2) sequentially enabling the gates of said first gate control lines and then the gates of said second gate control lines; and
- (3) obtaining said analog signals acquired in said first and second photodiodes of one of the same pairs and the adjacent pairs presented at said floating sensing point, in response to one of said first and second gate control lines.